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Ideal Apartments for International Students in University of Washington, Tacoma

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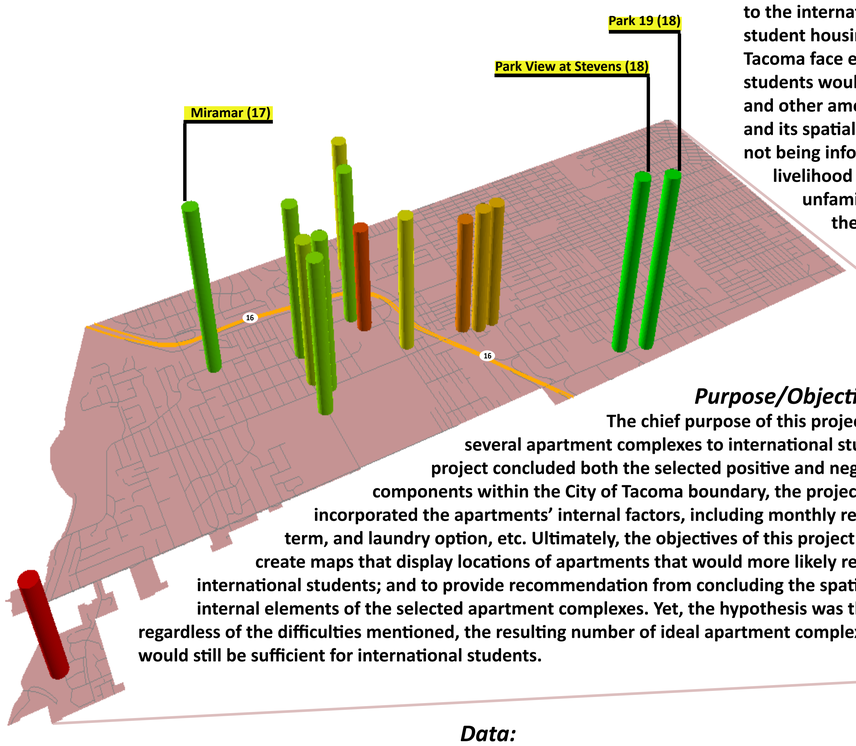
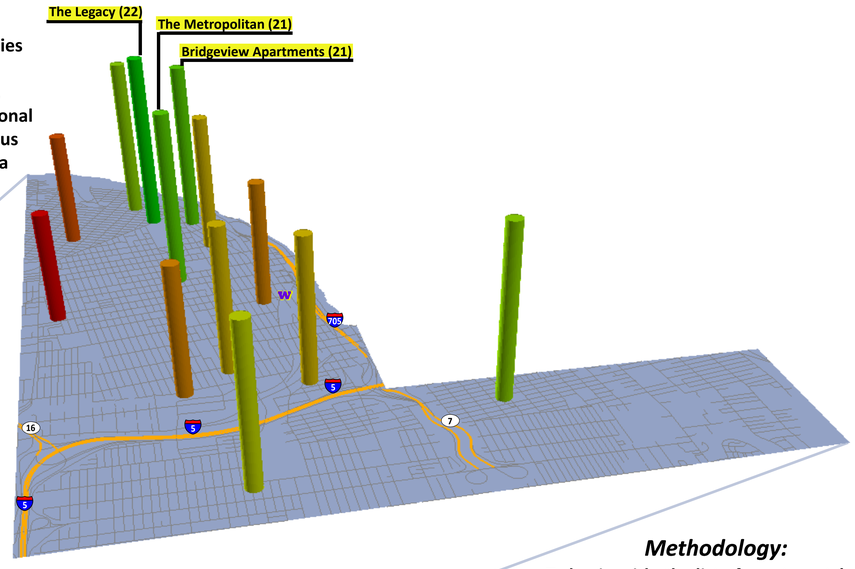
Sing Wong - University of Washington, Tacoma Geographic Information Systems Certificate & Urban Studies Programs

Introduction:

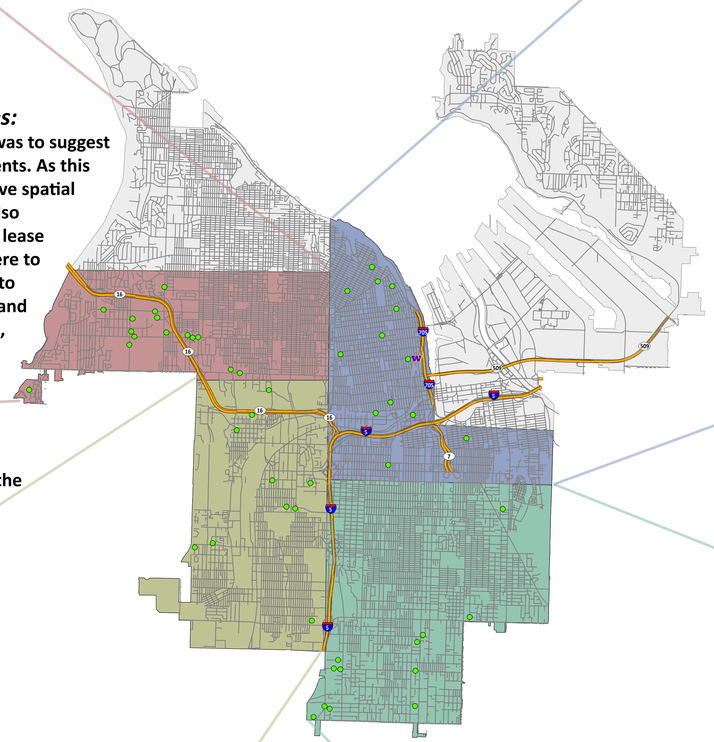
Beginning a new journey as an international student in a foreign country is no easy task, the same story applies to the international students in University of Washington, Tacoma. Yet, due to current inadequate supply of student housing units and the lack of a domestic host family housing program, international students in UW, Tacoma face even harsher challenges when looking for a place to live. Without many options, most international students would, therefore, choose to rent apartment units that are within reasonable proximity to the campus and other amenities as their homes. However, many international students might be unfamiliar with the area and its spatial components such as grocery stores, restaurants, banks and ATMs, and bus stops, etc. While not being informed, such unfamiliarity would drastically affect the students' ability to adopt a new livelihood since they might make inferior decisions on residency. Nevertheless, they might also unfamiliar with the apartment renting procedure which involves screening process over their immigration status, proof of financial sufficiency, and previous rental history. For some apartment managements, these elements reduce the likelihood of renting to international students.





Purpose/Objectives:

The chief purpose of this project was to suggest several apartment complexes to international students. As this project concluded both the selected positive and negative spatial components within the City of Tacoma boundary, the project also incorporated the apartments' internal factors, including monthly rent, lease term, and laundry option, etc. Ultimately, the objectives of this project were to create maps that display locations of apartments that would more likely rent to international students; and to provide recommendation from concluding the spatial and internal elements of the selected apartment complexes. Yet, the hypothesis was that, regardless of the difficulties mentioned, the resulting number of ideal apartment complexes would still be sufficient for international students.

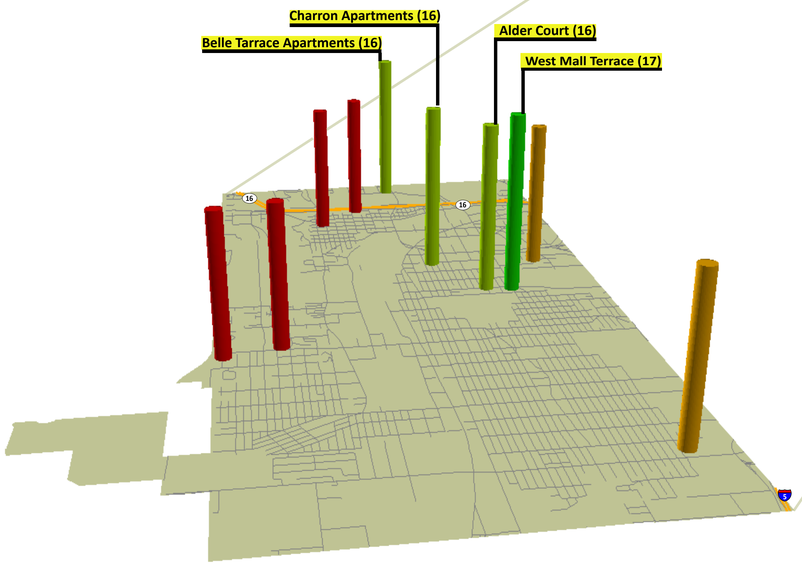


Methodology:

To begin with, the list of apartments' addresses was geocoded to create points on the map. To complete the apartment point layer, the apartment points were extracted from the InfoUSA shapefile, and were merged with the geocoded apartment points. The repeated records were then removed. Afterward, the collected primary data from the telephone survey was joined from the Excel file to the points. However, "non-responsive" or "NR" was included as one of the values under rental policy toward international student since significant portion of the apartment sample did not respond. Then, certain spatial features were also extracted from the InfoUSA shapefile. By utilizing service area analysis, the spatial features' proximity to the apartments was calculated. Based on the proximity, every factor was given scores. For balancing the factors' weigh, the scores for every factor were limited to only from 0 to 3. In this case, positive features would result in a score addition; negative features would result in a score deduction. Eventually, the total scores were multiplied by the rental policy index (either 0 or 1). The resulting numbers were used as the Z values (heights) of the apartment columns.

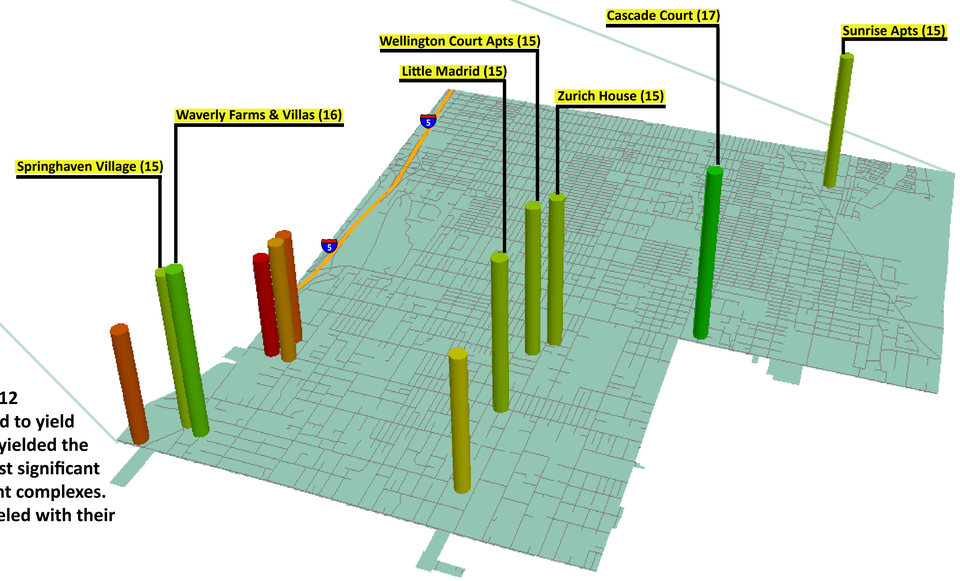
Data:

Primary data included the internal factors of the apartment complexes from a telephone survey. From the survey, details of monthly rent, minimum lease term, and policy toward international students were collected on an Excel file. Secondary data included addresses of the apartment complexes from various business/apartment online search engines and a businesses' point shapefile from InfoUSA, street line files from Census 2000 and 2010, and a Tacoma basemap from WAGDA. Furthermore, several spatial features were identified as either positive or negative. Positive spatial features included health facilities, grocery retailers, restaurants, bus stops, banks and ATMs, libraries, parks, post offices, fire stations, and police stations. Negative spatial features included liquor stores, bars, correctional facilities, and train tracks as noise distraction.



Result:

Although the number of the apartment reduced significantly from the total number of the sample, from 141 to 50, after multiplying the rental policy index, the remaining number still indicates that international students would have sufficient choices to choose from. Various apartments were eliminated from the project due to their specified principles, for example, senior housing and low-income housing project. Yet, non-responsive to the telephone survey appeared as the major reason for most apartments to be excluded. Furthermore, while each factor could optimally gain 3 points, which leads to a maximum score of 36 points from 12 positive spatial and internal factors, none of the selected apartment managed to yield the top range (from 25 to 36 points). Nevertheless, the three apartments that yielded the most points are located in the Downtown area in defined area two, and the most significant cluster of suitable apartments occurs in defined area one, comprising 10 apartment complexes. Within each defined area, apartments that share the highest three scores were labeled with their names along with their total scores.



State Route | Interstate Highway | Street | UW, Tacoma | Apartment Location | Apartment Name (Total Score) | Area One | Area Two | Area Three | Area Four | Most Recommended | Recommended | Least Recommended

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Data Souce: https://wagda.lib.washington.edu/data/geography/wa_counties/pierce/index.html
http://www.census.gov/cgi-bin/geo/shapefiles2010/file-download
http://www2.census.gov/cgi-bin/shapefiles/county-files?county=53053
http://infousa.com/